

ABSTRACT OF THE DISCLOSURE

A content addressable memory having a function for extending a data width to a plurality of words includes an entry configuration set unit which sets the number of words to form one entry, and a logical-segment-to-physical-segment converting circuit for converting the logical segments in one entry to the physical segments according to the setting of the entry configuration. The content addressable memory further includes a word circuit chain having the maximum number of one-word circuits belonging to each physical block which are combined to form one entry. The one-word circuits have CAM words associated therewith, and are connected in series over the physical block. A group of the words at the same number in entries where one entry is composed of a plurality of words forms a logical segment. The thus constructed content addressable memory is capable of an AND search for the words of which the addresses are apart from each other in one entry, or allows the words within one entry to be searched in an arbitrary order. Furthermore, a search operation for a portion of the words in one entry is used to do a match search for the entry. In addition, unintended word search is prevented, thereby reducing the power consumption.

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